भारतीय मानक

Indian Standard

IS 11990 : 2023

गैस धोने की बोतलें — विशीष्टि

(पहला पुनरीक्षण)

Gas Washing Bottles — Specification

(First Revision)

ICS 17.200.20

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May 2023 **Price Group 5**

Glass, Glassware and Laboratoryware Sectional Committee, CHD 10

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Glass, Glassware and Laboratoryware Sectional Committee had been approved by the Chemical Division Council.

This Indian Standard was prepared with the aim of reducing unnecessary variety in the types and sizes of gas washing bottles used in laboratories. In this standard the Drechsel bottle with fixed head has been prescribed. The dip tube of the bottle may be plain or sintered distributor.

This standard was originally published in 1986 based on BS 2461 : 1983 'Specification for gas washing bottles', issued by the British Standards Institution. The first revision of this standard was taken by incorporating the amendment, addition of hexagonal base foot and several other editorial changes such as inclusion of ICS No., and Reference clause, etc.

The composition of the committee responsible for development of this standard is listed in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’.The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

GAS WASHING BOTTLES — SPECIFICATION

(First Revision)

1 SCOPE

This standard prescribes the requirements, and methods of sampling and test for gas washing bottles suitable for general use in laboratories.

2 REFERENCES

The standards listed below contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below:

IS No.	*Title*
IS 1382 : 1981	Glossary of terms relating to glass and glassware (*first revision*)
IS 2303 (Part 1/ Sec 1) : 2021	Grading glass for alkalinity: Part 1 Hydrolytic resistance of glass grains, Section 1 Determination and classification of hydrolytic resistance at 98 °C (*third revision*)
IS 4905 : 2015	Random sampling randomization and procedures (*first revision*)
IS 5165 : 2017	Laboratory glassware — Interchangeable conical ground joints (*first revision*)
IS 12305 : 2018	Laboratory sintered (fritted) filters, porosity grading, classification and designation (*first revision*)

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 1382, in addition to the following shall apply:

3.1 Drechsel Bottle with Fixed Head — Drechsel bottle as shown in Fig. 1 with standard ground joint at the neck and with dip tube having fixed position.

4 NOMINAL CAPACITIES

The gas washing bottles shall be of nominal capacities of 125 ml, 250 ml and 500 ml.

5 REQUIREMENTS

5.1 Shape

The shape of gas washing bottles shall be as illustrated in Fig. 1.

5.2 Material

The gas washing bottles including the head and dip tubes, shall be made from transparent, clear glass conforming to Class HGB 1 of glass, when graded according to the method prescribed in IS 2303 (Part 1/Sec 1).

5.3 Workmanship

The gas washing bottles shall be regular in shape with smooth finish and well annealed. These shall be symmetrical about the axis. It shall be reasonably free from visible defects.

5.3.1 The gas washing bottles shall be provided with a stable base such that a bottle, complete with head, shall not topple when placed on a surface inclined at 15 to the horizontal, and shall stand firmly and upright on a level surface.

5.3.2 *Base/Foot*

The base/foot of the gas washing bottle may be solid, hollow, splay or hexagonal as illustrated in Fig. 2A to Fig. 2D, or as agreed to between the purchaser and the supplier.

5.3.3 *Ground Glass Joints*

The ground glass joints of gas washing bottles shall be of sizes 29/32 or 40/38 and shall comply with the requirements of IS 5165.

5.3.4 *Dip Tube*

The dip tube of gas washing bottle shall be either plain or fitted with sintered distributor as agreed to between the purchaser the supplier. Sintered distributors, when fitted, shall be of porosity grade number from P 1.6 to P 250 and shall conform to the requirements specified in IS 12305.

5.3.5 The lower tip of the head shall be provided with not less than three supports (for example, indentations) to support the dip tube (*see* Fig. 1). The outer surface of the head shall be provided with opposing flat surfaces to facilitate grip for safe removal.

5.3.6 The gas washing bottles shall be of robust construction to satisfy the requirement of normal use.

5.4 Dimensions

The gas washing bottles shall comply with the dimension given in Table 1 and Fig. 1.

5.4.1 *Tolerance*

It shall be of ± 5 percent on all dimensions when the tolerance is not specified in Table 1 and Fig. 1.

6 PACKING AND MARKING

6.1 Packing

The gas washing bottles shall be packed as agreed to between the purchaser and the supplier.

6.2 Marking

6.2.1 The gas washing bottles shall be marked permanently and legibly on its outer surface with the following:

a) Name of the manufacturer or his recognized trade-mark, if any;

b) Nominal capacity in ml;

c) A rough surface or suitably painted one centimeter square for marking purpose;

d) Standard joint size on the body and the head part; and

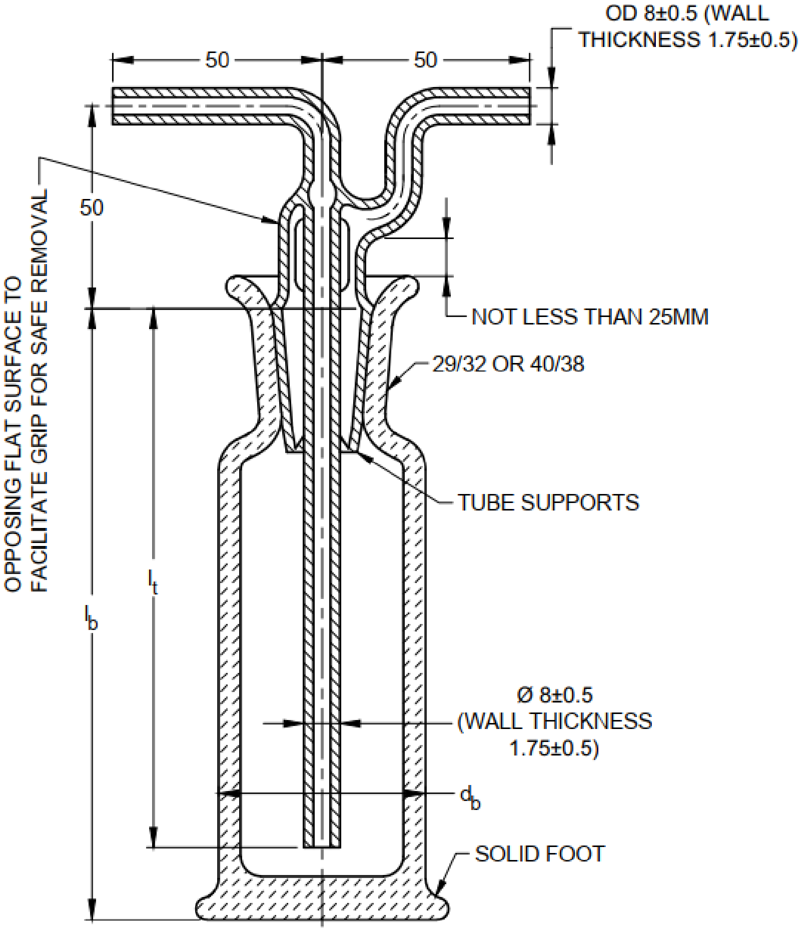
e) Porosity grade number on the head, if porous distributor provided.

6.2.2 *BIS Certification Mark*

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

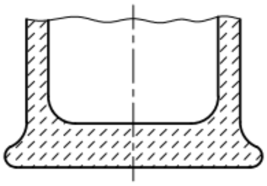
7 SAMPLING

7.1 Representative samples of the gas washing bottle shall be drawn as prescribed in Annex A.

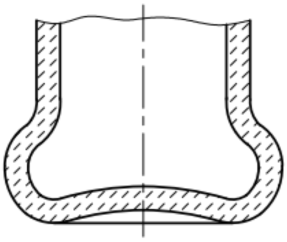

OD 8±0.5 (WALL THICKNESS 1.75±0.5)
50
50
50
OPPOSING FLAT SURFACE TO FACILITATE GRIP FOR SAFE REMOVAL
NOT LESS THAN 25MM
29/32 OR 40/38
TUBE SUPPORTS
l_t
l_b
Ø 8±0.5 (WALL THICKNESS 1.75±0.5)
d_b
SOLID FOOT

All dimensions in millimetres

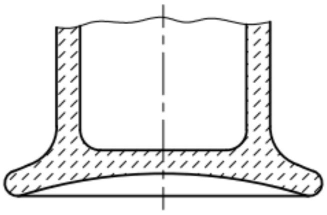
FIG. 1 DRECHSEL BOTTLE FITTED WITH SOLID FOOT AN PLAIN TUBE



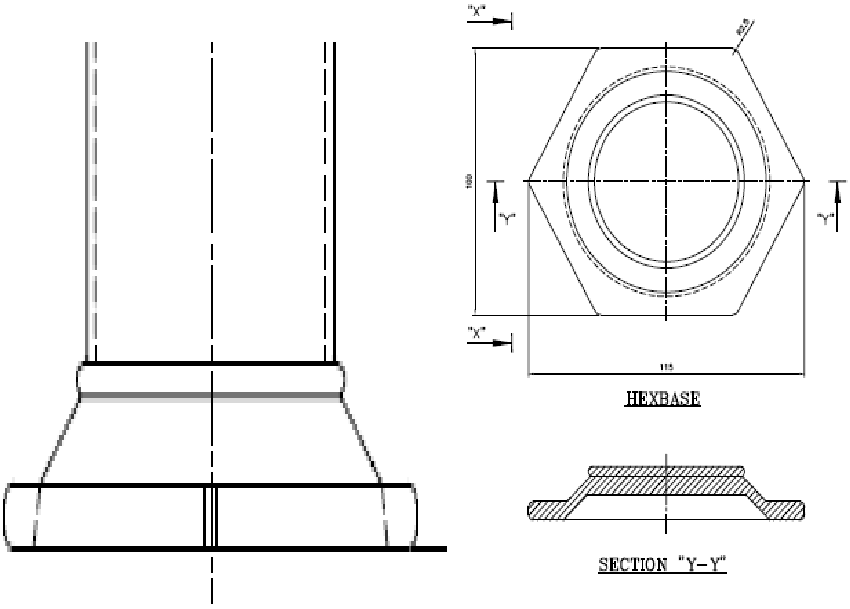
2A SOLID FOOT



2B HOLLOW FOOT



2C SPLAYED FOOT



2D HEXAGONAL

FIG. 2 ALTERNATIVE FORMS

Table 1 Dimension of Gas Washing Bottles

(*Clause* 5.4)

Sl No.	**Dimensions**	**Nominal Capacities**		
		125 ml	250 ml	500 ml
(1)	(2)	(3)	(4)	(5)
i)	Overall length of the body, l_b	148	188	240
ii)	Length from top of the cone to bottom of distributor tube, l_t	130	165	215
iii)	External diameter of the body, d_b	48	56	70

ANNEX A

(*Clause* 7.1)

SAMPLING OF GAS WASHING BOTTLES

A-1 SCALE OF SAMPLING

A-1.1 Lot

All the gas washing bottles of same type and same capacity in one consignment shall constitute a lot.

A-1.2 Samples shall be tested separately from each lot for ascertaining conformity of gas washing bottles to the requirements of this specification.

A-1.3 The number of gas washing bottles to be sampled from a lot for this purpose shall depend on lot size and shall be in accordance with co1 (2) of Table 2. In order to ensure randomness of selection of gas washing bottles from the lot, procedures given in IS 4905, may be adopted.

A-2 NUMBER OF TEST AND CRITERIA FOR CONFORMITY

A-2.1 Tests for all the requirements given in **5**,except quality of glass (**5.2**) shall be conducted on each of the bottle selected according to col (2) of Table 2. If a gas bottle fails to meet any of these requirements, is shall be declared as defective and the number of defective bottles in the sample shall not be more than the corresponding acceptance numbers given in col (3) of Table 2.

A-2.2 Test for a quality of glass shall be conducted on two gas bottles and the lot shall be declared as conforming to the requirements of quality of glass if there is no failure in the sample.

Table 2 Number of Gas Bottles to be Selected

(*Clause* A-1.3 and A-2.1)

Sl No. (1)	Lot Size (2)	Sample Size (3)	Acceptance Number (4)
i)	Up to 50	3	0
ii)	51 to 100	5	0
iii)	101 to 150	8	1
iv)	151 to 300	13	2
v)	301 and above	20	3

ANNEX B
(*Foreword*)

COMMITTEE COMPOSITION
Glass, Glassware and Laboratoryware Sectional Committee, CHD 10

Organization	*Representative(s)*
CSIR - Central Glass and Ceramic Research Institute, Kolkata	DR SUMAN KUMARI MISHRA (***Chairperson***)
AGI Glaspac, Gurugram	SHRI RAJESH KHOSLA SHRI VISHWANATH AMBADIPUDI (*Alternate*)
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Shree Labware and Process Systems, Bengaluru	SHRI A. N. S. KUMAR
SISECAM Flat Glass India Pvt Ltd, Halol	SHRI PARAG SHAH SHRI PANKAJ NUWAL(*Alternate*)
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Voluntary Organization in Interest of Consumer Education (VOICE), New Delhi	SHRI B. K. MUKHOPADHYAY SHRI K. C. CHAUDHARY (*Alternate*)
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This Indian Standard has been developed from Doc No.: CHD 10 (18891).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi